GENETICS

Supporting Information
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Functional Specialization of Sensory Cilia by an RFX Transcription Factor Isoform

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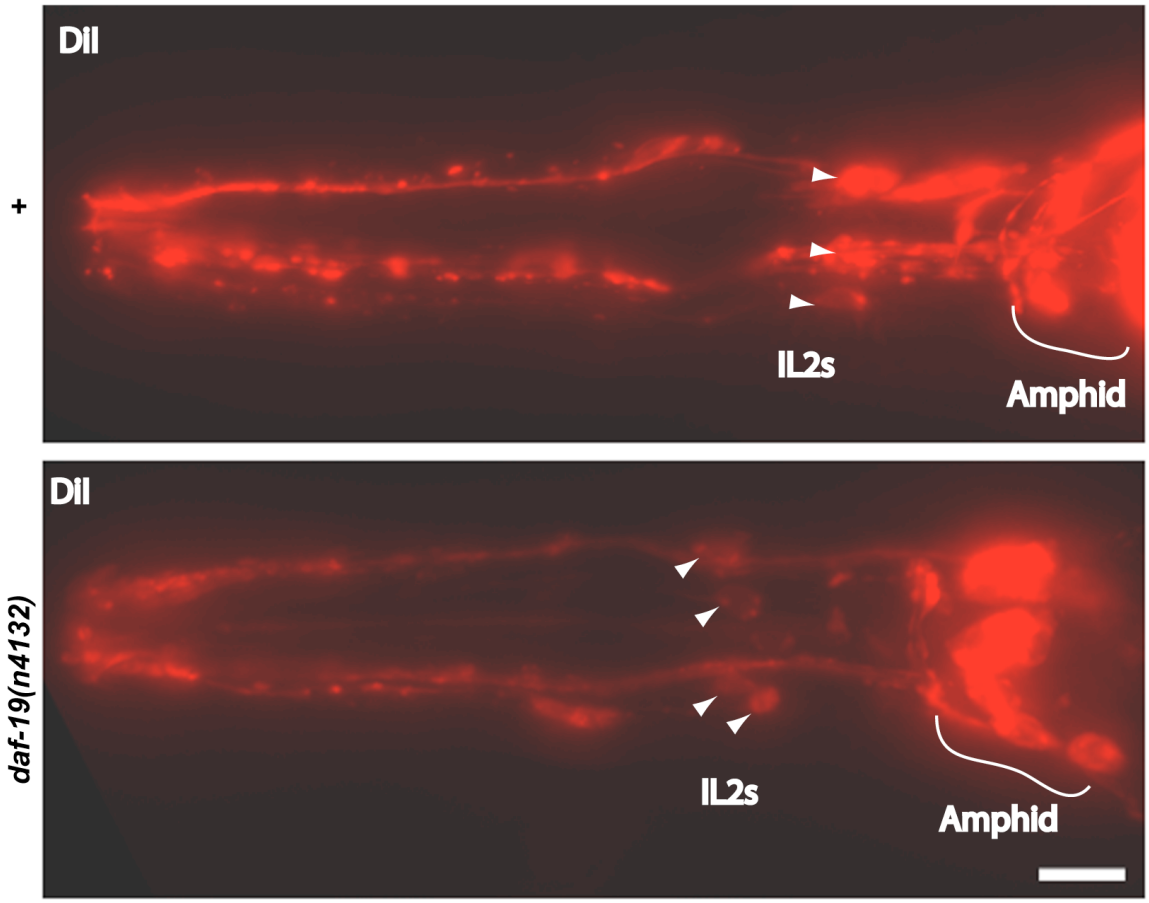
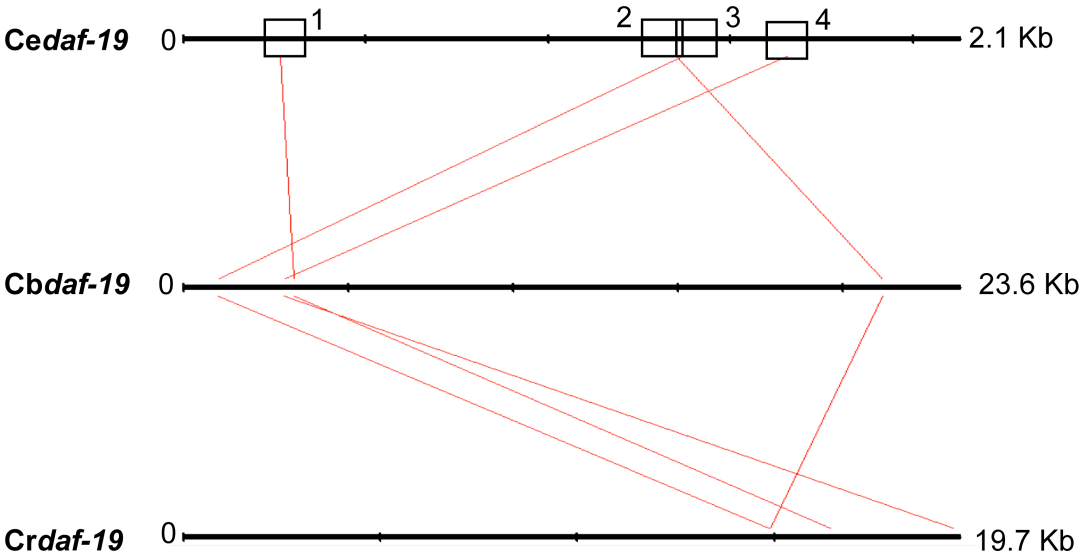


FIGURE S1.—Both wild type (+) and *n4132* animals are able to uptake lipophilic fluorescent dye DiI through IL2 and amphid cilia. Arrowheads point to IL2 cell bodies and brackets indicated amphid cell bodies.

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     Ce AAAAAAAAAATcgAAATTTT
1    Cb AAAAAAAAAATtaAAATTTT
     Cr AAAAAcgAAATaaAAATTTT

     Ce AAATaTTCcAAAcTTTGAAA
2    Cb AAATtTTCtAAAtTTTGAAA
     Cr AAAATTTCCAAATTTTCAAA

     Ce ATTTTGaAAAcTTGAAATT
3    Cb ATTTTGgAAAtTTGAAATT
     Cr ATTTTGAAAATTTGGAAaT

     Ce TTCttAATTTTTTtTATAATT
4*   Cb TTCTaAATTTTTTcTAaAATT
     Cr TTCaaAATTTTTTaTATAATT
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FIGURE S2.—Three-way analysis of interspecific *daf-19* sequences using FamilyRelationshipII. *C. elegans daf-19* (Ce*daf-19*) sequence from GCGTTTCGTAGA to TAAATAAAAATT (F33H1 15735 to 17838 nt) is used, whose function was tested first by attaching to P1*daf-19m*::GFP reporter to make P*daf-19m*::GFP reporter (also see Figure 6). 23.6 Kb Cb*daf-19* and 19.7 Kb Cr*daf-19* sequences were downloaded from Wormbase (www.wormbase.org) . Boxes in *Cedaf-19* indicate positions of the conserved elements. The four DNA elements were then attached to P1*daf-19m*::GFP to test function, with the fourth element TTCTTAATTTTTTTTATAATT being the only functional requirement.

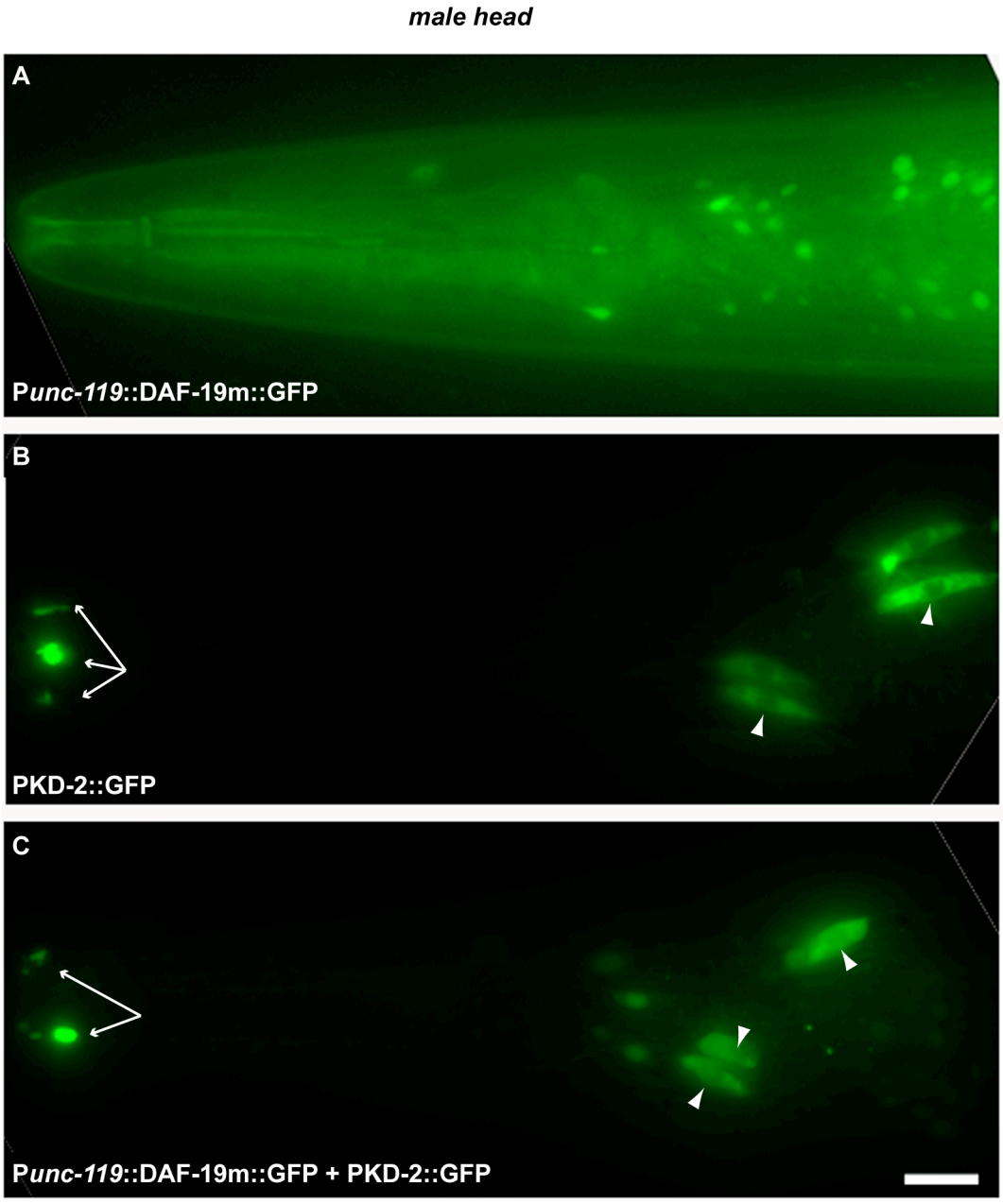

FIGURE S3.— Distinct cellular localization of DAF-19m::GFP and PKD-2::GFP. A. DAF-19m::GFP resides in exclusively in the nucleus. B. PKD-2::GFP localizes to cell bodies and cilia, arrows point to cilia. Note nuclear exclusion of PKD-2::GFP in cell bodies (arrowheads). C. DAF-19m::GFP + PKD-2::GFP. Arrowheads point to the nuclear area, which is clear in panel B, filled with DAF-19M in panel C.

TABLE S1

Transgenic and mutant strain list used in this study

Strain	Description	Ref
MT13057	*nIs133 I; him-5(e1467ts) V; n4132*	Hillel Schwartz and H.R. Horvitz
PT1727	*daf-19 (n4132)II; him-5(e1490)V*	This study
PT1725	*daf-19 (n4132)II; pha-1(e2123ts)III; him-5(e1490)V*	This study
PT1726	*daf-19 (n4132)II; pha-1(e2123ts)III; myIs4[PKD-2::GFP +ccGFP] him-5(e1490)V*	This study
PT1770	*daf-19 (n4132)II; pha-1(e2123ts)III; him-5(e1490)V; syEx301[lov-1::GFP1+ pBX1]*	This study
PT1771	*daf-19 (n4132)II; pha-1(e2123) III; him-5(e1490) V; myEx256[Posm-5::gfp+ pBX1]*	This study
PT1772	*daf-19 (n4132)II; pha-1(e2123) III; him-5(e1490) V; myEx4[DAF-10::GFP+ pBX1]*	This study
PT1773	*daf-19 (n4132)II; him-5(e1490) V; nxEx1[Pbbs-1::GFP + dpy-5(+)]*	This study
PT1774	*daf-19 (n4132)II; him-5(e1490) V; nxEx2[Pbbs-2::GFP + dpy-5(+)]*	This study
PT1734	*daf-19 (n4132)II; him-5(e1490), mnIs17[OSM-6::gfp; unc-36(+)] V*	This study
PT1731	*daf-19 (m86)II; him-5(e1490)V*	This study
PT1777	*daf-19 (n4132)II;him5(e1490)V; rtEx277 [Pnlp-8::GFP +lin-15(+)]*	This study
PT1778	*daf-19 (n4132)II; chIs1200 [ceh-26::GFP + dpy-20(+)]*III; *him-5(e1490)V; Is[ceh-26::GFP]*	This study
PT1750	*daf-19 (n4132)II; pha-1(e2123ts)III; myIs4[him-5(e1490)V; myEx633[PCR1+pBX1]*	This study
PT1779	*daf-19 (n4132)II; pha-1(e2123ts)III; myIs4 him-5(e1490)V; myEx634[PCR2+pBX1]*	This study
PT1780	*daf-19 (n4132)II; pha-1(e2123ts)III; him-5(e1490), myIs4V; myEx635[PCR3+pBX1]*	This study
PT1781	*daf-19 (n4132)II; pha-1(e2123ts)III; him-5(e1490), myIs4 V; myEx636[PCR4+pBX1]*	This study
PT1783	*pha-1(e2123) III; him-5(e1490) V; myEx637[P1daf-19m::GFP+pBX1]*	This study
PT1784	*pha-1(e2123) III; him-5(e1490) V; myEx638[P2daf-19m::GFP+pBX1]*	This study
PT1785	*pha-1(e2123) III; him-5(e1490) V; myEx639[P3daf-19m::GFP+pBX1]*	This study
PT1786	*pha-1(e2123) III; him-5(e1490) V; myEx640[P4daf-19m::GFP+pBX1]*	This study
PT1787	*pha-1(e2123) III; him-5(e1490) V; myEx641[P5daf-19m::GFP+pBX1]*	This study
PT1764	*him-5(e1490)V; myEx642[Posm-9::GFP+ccGFP]*	This study
PT1766	*daf-19 (n4132)II; him-5(e1490) V; myEx642[Posm-9::GFP+ ccGFP]*	This study
PT1768	*daf-19 (86)II; him-5(e1490)V; myEx642[Posm-9::GFP+ccGFP]*	This study
PT1788	*daf-19 (n4132)II; him-5(e1490)V; lin-15(n765) X; adEx1262[gcy-5::GFP+ lin-15(+)]*	This study
PT1789	*daf-19 (n4132)II; him-5(e1490)V; lin-15(n765) X; adEx1295[gcy-32::GFP+ lin-15(+)]*	This study
PT2080	pha-1; myEx683[Punc-119::DAF-19m::GFP]	This study
PT2081	pha-1; myEx684[Pdaf-19m::GFP]	This study
PT2082	pha-1; egl-46; myEx684[Pdaf-19m::GFP]	This study
General strains		
PT658	*lov-1(sy582)II; pkd-2(sy606)IV; him-5(e1490) V*	Barr 1999
PS622	*dpy-17(e164) III; him-5(e1490) V*	Brenner 1974
PS3149	*pha-1(e2123ts) III; him-5(e1490) V; syEx301[lov-1::GFP1+pBX1]*	Barr 1999
CB444	*unc-52(e444) II*	Brenner 1974
PT2	*pha-1(e2123ts) III; him-5(e1490) V; myEx256(Posm-5::gfp)*	Qin 2001
PT26	*pha-1(e2123ts); him-5(e1490); myEx4[pBX1+ DAF-10::GFP]*	Qin 2001

MX1	*dpy-5(e907) I; nxEx1 [Pbbs-1::GFP + dpy-5(+)]*	Michel Leroux
MX2	*dpy-5(e907) I; nxEx2[Pbbs-2::GFP + dpy-5(+)]*	Michel Leroux
DR103	*dpy-10(e128) unc-4(e120) II*	Varkey 1993
CB4077	*eDf21 / mnC1 dpy-10(e128) unc-52(e444) II*	Shen 1988
SP354	*unc-4(e120) mnDf71 / mnC1 dpy-10(e128) unc-52(e444) II*	Sigurdson 1984
Sp429	*mnDf25 / mnC1 dpy-10(e128) unc-52(e444) II*	Sigurdson 1984
SP540	*mnDf27 / mnC1 dpy-10(e128) unc-52(e444) II*	Sigurdson 1984
SP542	*mnDf29 / mnC1 dpy-10(e128) unc-52(e444) II*	Sigurdson 1984
MB5	*lin-15(ts); him5(e1490); rtEx277[Pnlp-8::GFP+lin-15(+)]*	Yu 2003
JT190	*daf-19(sa190ts) II*	Swoboda 2000
JT6824	*daf-19(sa232ts) II*	Swoboda 2000
DR431	*daf-19(m86) / mnC1 dpy-10(e128) unc-52(e444) II*	Swoboda 2000
PS3380	*him-5(e1490), mnIs17[OSM-6::gfp+unc-36(+)] V*	Collet 1998
TB1225	*chIs1200[ceh-26::GFP + dpy-20(+)]III; him-5(e1490)V*	Yu 2003
DA1262	*lin-15(n765) X; adEx1262[gcy-5::GFP+ lin-15(+)]*	Yu 1997
DA1295	*lin-15(n765) X; adEx1295[gcy-32::GFP+ lin-15(+)]*	Yu 1997

TABLE S2

Primers, templates, vectors used for PCR fragments and plasmids in this study

	5' primer	3' primer	template
CWP-1::GFP	5'-catgacgacaaagcggatca-3'	5'-ttctcctttactgaatttctta gaggcgagaaggc-3'	*him-5* genomic DNA
	5'-ctctaagaaattcagtaaag gagaagaacttttcac-3'	5'-caaacccaaaccttcttccg-3'	pPD95.75
P*osm-9*::GFP	5'-aaagtcgaggcttgctccc-3'	5'-gagtcgacctgcaggcatagag ccaagatatgggcgg-3'	B0229
	5'-ccgcccatatcttggctcta tgcctgcaggtcgactct-3'	5'-gccatcgccaattggagtat-3'	pPD95.75
PCR1	5'-gattccgacgttggctttcg-3'	5'-caagatggaacgggagac-3'	F33H1 cosmid
PCR2	5'-gcgtttcgtagaacaactac-3'	5'-caagatggaacgggagac-3'	F33H1 cosmid
PCR3	5'-cacctgacaccgttttgagc-3'	5'-caagatggaacgggagac-3'	F33H1 cosmid
PCR4	5'-cacctgacaccgttttgagc-3'	5'-caagatggaacgggagac-3'	*n4132* genomic DNA
P1*daf-19m*::GFP	5'-gaatgcatgcggttcacaa ctaacctggatag-3'	5'-gaagtcgacaagccac ctgctctcgggtt-3'	F33H1 cloned to pPD95.75
P2*daf-19m*::GFP	5'-gaatgcatgcggttcacaa ctaacctggatag-3'	5'-gaagtcgacaagccac ctgctctcgggtt-3'	*n4132* DNA cloned to pPD95.75
P3*daf-19m*::GFP	5'-cagaattcttaatttttttataat tgcagccatcacaagccaca-3'	5'-caaacccaaaccttcttccg-3'	P1*daf-19m*::GFP
P4*daf-19m*::GFP	5'-gaatgcatgcggttcacaact aacctggatag-3'	5'-cggtgatgagtcccgagcgcgc ccatagtttcaacaag-3'	P1*daf-19m*::GFP
	5'-cttgttgaaactatgggcgcgct cgggactcatcaccg-3'	5'-caaacccaaaccttcttccg-3'	P1*daf-19m*::GFP
P5*daf-19m*::GFP	5'-cagaattcttaatttttttataattg cagccatcacaagccaca-3'	5'-caaacccaaaccttcttccg-3'	P4*daf-19m*::GFP
P*daf-19m*::GFP	5'-gaatgcatgcgtttcgtagaac aactac-3'	5'-gttgcatgcgcacccccctgcaag ccaatc-3'	F33H1 cloned to P1*daf-19m*::GFP

To make the PCR-SOE reporter, primer 1 and 2 were paired with template 1, primer 3 and 4 were paired with template 2; in the second round, primer 1 and 4 were paired with template made by mixing same molar concentration of products of the two first round PCR.

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